

**WHAT IS CLAIMED IS:**

1. An image forming apparatus comprising:  
a memory means for storing image data of a hard copy of a document;  
an embedding means for embedding an additional data into the image data  
stored in said memory means, which additional data comprising data on the  
5 management of copy, which additional data comprising discrete dots arranged in a  
prescribed format; and  
an image forming means for producing a copy according to the image data  
including the additional data embedded by said embedding means.
2. The image forming apparatus according to Claim 1, further comprising  
10 a read means for reading an image of a document, wherein said memory means  
storing the image data read by said read means.
3. The image forming apparatus according to Claim 1, further comprising  
an analysis means for analyzing image data received from a computer or from a  
floppy disk drive so as to be stored in said memory means, wherein said memory  
15 means stores the image data received from said analysis means.
4. The image forming apparatus according to Claim 1, wherein said  
additional data comprises a plurality of block data, each block data further comprising  
a data to identify the block.
5. The image forming apparatus according to Claim 1, wherein said  
20 embedding means decides the density of the discrete dots so that the density of the  
discrete dots is different from the density adjacent to the discrete dots.
6. The image forming apparatus according to Claim 1, wherein the size of  
each of said discrete dots is not so large as to be recognized easily with naked eyes.

7. The image forming apparatus according to Claim 1, wherein said additional data comprises a data to identify a copy to be reproduced by said image forming means.

8. The image forming apparatus according to Claim 7, wherein said additional data further comprises data to identify said image forming apparatus and a user who operates said image forming apparatus.

9. The image forming apparatus according to Claim 7, wherein said additional data comprises a data on the generation of copy with respect to the original source.

10. The image forming apparatus according to Claim 7, wherein said additional data comprises a data to identify a sequential number of copies obtained from the same document.

11. The image forming apparatus according to Claim 7, wherein said additional data comprises a data on the rank of secret of a document.

12. The image forming apparatus according to Claim 1, wherein said embedding means embeds the same additional data at a plurality of positions.

13. An image forming apparatus comprising:  
a memory means for storing the image data of a hard copy of a document, which image data including an additional data embedded in the inherent image in the document, which additional data comprising discrete dots arranged in a prescribed format; and  
an extraction means for extracting an additional data embedded in the inherent image.

14. The image forming apparatus according to Claim 13, further comprising a read means for reading an image of a document, wherein said memory means storing the image data read by said read means.

15. The image forming apparatus according to Claim 13, further comprising an analysis means for analyzing image data received from a computer or from a floppy disk drive so as to be stored in said memory means, wherein said memory means stores the image data received from said analysis means.

5 16. The image forming apparatus according to Claim 13, wherein the density of the discrete dots is different from the density adjacent to the discrete dots and said extraction means extracts the additional data from the density of the image data.

10 17. The image forming apparatus according to Claim 13, wherein said additional data comprises a plurality of block data, each block data further comprising a data to identify the block, and said extraction means reconstructs the additional data from the data of the blocks.

15 18. The image forming apparatus according to Claim 13, wherein said extraction means verifies the additional data with the majority decision if a plurality of additional data is extracted.

19. The image forming apparatus according to Claim 13, wherein said additional data comprises the total number of pixels included in an image and said extraction means further comprising a count means for counting the total number of pixels included in the image in the hard copy, which image forming apparatus further  
20 comprising a decision means for deciding a forged document if the total number counted by said count means is different from that extracted by said extraction means.

20. The image forming apparatus according to Claim 13, wherein said extraction means decides that the hard copy is an edited document if a plurality of additional data is extracted from the hard copy.

25 21. The image forming apparatus according to Claim 13, further comprising a filing unit for storing image data of an image which is decided to be new

according to the additional data extracted by said extraction means and the additional data.

22. The image forming apparatus according to Claim 13, further comprising:

5 an image forming means for producing a copy according to the image data; and

a control means for controlling said image forming means according to the additional data extracted by said extraction means.

23. The image forming apparatus according to Claim 22, wherein said  
10 control means comprises a recovery means for recovering image data at the positions used to express the additional data and said image forming means produces a copy according to the image data including the data recovered by the recovery means.

24. The image forming apparatus according to Claim 22, wherein said  
15 additional data comprises a data to identify a document to be reproduced by said image forming means and a data to identify a user of said image forming means; said apparatus further comprising a decision means for deciding if the reproduction of the document is not legitimate from the additional data extracted by said extraction means and inhibits the reproduction of said image forming means if said decision means decides that the reproduction is not legitimate.

20 25. The image forming apparatus according to Claim 22, further comprising a display means for displaying an alarm message when said decision means decides that the reproduction of the document is not legitimate.

26. An image forming apparatus comprising:  
a memory means for storing the image data of a hard copy of a document,  
25 which hard copy being embedded with an additional data comprising data on the management of copy, which additional data comprising discrete dots arranged in a prescribed format;

an extraction means for extracting additional data embedded in the document image;

a generation means for generating an additional data according to the extracted additional data;

5        an embedding means for embedding the additional data generated by said generation means into the image data stored in said memory means; and

an image forming means for producing a copy according to the image data stored in said memory means.

27.     The image forming apparatus according to Claim 26, wherein said  
10    additional data comprises data on the generation and the copy number and said generation means generates data on the generation and the copy number.

28.     The image forming apparatus according to Claim 26, wherein said additional data comprises a data to identify a copy to be reproduced by said image forming means.

15        29.     The image forming apparatus according to Claim 26, wherein said additional data comprises data to identify said image forming apparatus and a user thereof.

30.     The image forming apparatus according to Claim 26, wherein said additional data generated by said generation means comprises a data on the generation  
20    of copy with respect to the original source.

31.     The image forming apparatus according to Claim 26, wherein said additional data generated by said generation means comprises a data to identify a sequential number of copies obtained from the same document.

32.     A copy management system comprising:  
25    at least one printer for producing a copy; and  
a management means for managing copies produced by said at least one printer;

said printer comprising:

a read means for reading a hard copy of a document, which hard copy including an additional data embedded in the inherent image of the document, which additional data comprising discrete dots arranged in a prescribed format;

5        an extraction means for extracting the additional information embedded in the hard copy from the image data obtained by said read means image; and

an image forming means for producing a copy of the hard copy;

said management means storing the additional data extracted by said extraction means and managing said printer according to the additional data.

10        33.     The copy management system to Claim 32, wherein said management means further comprises a means for summing the total number of copies derived from each original document.

34.     The copy management system according to Claim 32, wherein said additional data comprises a data to identify said printer and a user and said  
15        management means further comprises a means for analyzing a tree map on the generation of copies derived from the same original document.

35.     An image forming apparatus comprising.

a read means for reading an image of a document;

20        an image forming means for producing a copy according to the image data read by said read means;

a receive means for receiving an additional data from a transmitter provided in the document, the additional data comprising data on the management of copy; and

a control means for controlling the image forming means according to the additional information received by said receive means.

25        36.     The image forming apparatus according to Claim 35, wherein said additional data comprises a data to identify a document to be reproduced by said image forming means and data to identify a user of said image forming means; said apparatus further comprising a decision means for deciding if the reproduction of the document is not legitimate from the received additional data and inhibits the

production of a copy of said image forming means if said decision means decides that the reproduction is not legitimate.

37. The image forming apparatus according to Claim 35, wherein said additional data comprises a data to identify a copy to be reproduced by said image forming means.

38. The image forming apparatus according to Claim 37, wherein said additional data further comprises data to identify said image forming apparatus and a user who operates said image forming apparatus.

39. The image forming apparatus according to Claim 37, wherein said additional data comprises a data on the generation of copy with respect to the original source

40. The image forming apparatus according to Claim 37, wherein said additional data comprises a data to identify a sequential number of copies obtained from the same document.

41. The image forming apparatus according to claim 37, wherein said additional data comprises a data on the rank of secret of a document.